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JC10 Rec'd PCT/PTO 14 MAR 2002

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PATENTS AND TRADEMARKS

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March 14, 2002

BY EXPRESS MAIL NO. EMO49924553US

Box PCT
Commissioner for Patents
Washington, DC 20231

Re: U.S. Patent Application
Portable Cellular Telephone And Communication System Thereof
Zanzi
Our Ref: METR0410US

Sir:

Transmitted herewith for filing under 35 U.S.C. 371 are:

1. Copy of the specification for PCT International Application No. PCT/IB00/01320 as published by WIPO under International Publication No. WO 01/22694 A1, including drawings as published by WIPO on March 29, 2001;
2. Copy of International Preliminary Examination Report and amendments to the application dated January 3, 2002;
3. Preliminary Amendment;
4. Application Data Sheet
5. Unexecuted Inventor's Declaration;

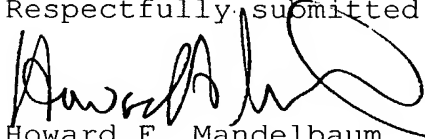
It is requested that the enclosed self-addressed postcard be stamped with the official dating stamp of the U.S. Patent and Trademark Office and returned. If the enclosed papers are considered incomplete in any way, it is also requested that the undersigned be advised by collect telephone call to (212) 239-4162 immediately upon receipt of this correspondence.

Small entity status is entitled to be asserted for the application.

10/088371
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March 14, 2002
Page 2

The basic national fee of \$520.00, plus any unpaid fee or balance which must be paid at this time to keep the case alive, may be charged to deposit account no. 06-0735. A duplicate of this authorization is enclosed.

Respectfully submitted



Howard F. Mandelbaum
Registration No. 27,519
Attorney for Applicant

HFM:cnt
enc.

$$= \frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} e^{-\frac{1}{2}\lambda^2} d\lambda = 1$$

10/088371

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INVENTOR

INVENTOR INFORMATION

```
Inventor One Given Name::
Family Name::
Postal Address Line One::
Postal Address Line Two::
City::
Country::
Citizenship Country::
name typed out]
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CORRESPONDENCE INFORMATION

Correspondence Customer Number:: 24235

APPLICATION INFORMATION

Title Line One::	Portable Cellular Telephone And
Title Line Two::	Communication System Thereof
Total Drawing Sheets::	3
Formal Drawings?::	Yes
Application Type::	Utility
Docket Number::	METRO410US

REPRESENTATIVE INFORMATION

Representative Customer Number:: 24235

CONTINUITY INFORMATION

This application is a:: 371
> Application One:: PCT/IB00/01320
Filing Date: September 19, 2000

PRIOR FOREIGN APPLICATIONS

Foreign Application One:: MI99A001941
Filing Date:: September 20, 1999
Country:: Italy
Priority Claimed:: Yes

10/088371

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IN THE U.S. PATENT AND TRADEMARK OFFICE

#2/a

In re Application of: Zanzi

For: Portable Cellular Telephone And Communication System Thereof

National Stage of International Application No.: PCT/IB00/01320

PCT International Filing Date: September 19, 2000

Attorney Docket No.: METR0410US

I certify that this correspondence is being deposited with the United States Postal Service as Express Mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on March 14, 2002

Howard F. Mandelbaum

Dated: March 14, 2002

Levine & Mandelbaum
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New York, N.Y. 10118
(212) 239-4162

Box PATENT APPLICATION
Commissioner for Patents
Washington D.C. 20231

Sir:

PRELIMINARY AMENDMENT

Please enter the following amendment before computing the filing fee in the above identified patent application.

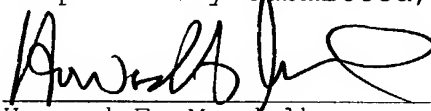
In the specification and claims:

Substitute the attached amended specification, including claims 1 - 15 for the application as amended before the International examining authority.

REMARKS

The foregoing amendments have been made to a specification translated from Italian for greater consistency with U.S. idiom and practice.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Howard F. Mandelbaum', written over a horizontal line.

Howard F. Mandelbaum
Registration No. 27,519
Attorney for Applicant

HFM:cnt

PORTABLE CELLULAR TELEPHONE
AND COMMUNICATION SYSTEM THEREOF

Background of the Invention

5 The present invention relates to a portable cellular telephone and associated communication system with telematic services supplied by telecommunications stations and/or networks.

 In recent times, telecommunications networks have experienced an extremely fast development spreading to every society level and
10 making available to subscribers a large number of remote access services through special terminals.

 The telematic services range from Internet connectivity to interactions with other network types, which may be identified by a wide geographical coverage, such as a cellular telephone network,
15 or have a local diffusion, such as a company network, or just be simple stations for supplying services, such as a computer. Also services having access through special smartcards connected with the terminals are included in this range of telematic services.

 Therefore, subscribers need to use a plurality of terminals to
20 provide interaction with the telematic services, involving consequent encumbrance and management problems.

 In addition, some of these terminals, in particular those using radio transmissions, such as cellular telephones, expose the subscriber's body to very close radio emissions. Therefore, it is
25 obvious how such exposures are dangerous for the subscriber, and how, increasing the number of terminals causing such harmful radio

emissions in contact with the subscriber, would be extremely harmful.

Summary of the Invention

It is an object of the present invention to solve the above
5 drawbacks and provide a portable cellular telephone and associated communication system with telematic services supplied by telecommunications stations and/or networks, having a more efficient and improved performance with respect to existing solutions.

10 Within this framework, it is a main object of the present invention to provide a portable cellular telephone and associated communication system with telematic services supplied by telecommunications stations and/or networks allowing concentration of the terminals required for a subscriber's interaction with the
15 telematic services in one terminal alone, which is not harmful to the subscriber.

European patent application EP-A-781018 discloses a mobile phone device in two parts, one part containing the high-frequency circuits and the other the low-frequency circuits. These two parts
20 can communicate through wire, infrared or ultrasound connection, so that the high-frequency part is capable of being placed at a location where the quality of the radio link is good, while the user can still move relatively freely holding the low-frequency part.

.

In order to achieve such aims, it is an object of the present invention to provide a portable cellular telephone and associated communication system with telematic services supplied by telecommunications stations and/or networks, incorporating the
5 features of the annexed claims, which form an integral part of the description herein.

Description of the Drawings

Further objects, features and advantages of the present invention will become apparent from the following detailed
10 description and annexed drawings, which are supplied by way of non limiting example, wherein:

Fig. 1 is an exploded prospective view of a portable cellular telephone according to the present invention;

Fig. 2 is a side view of the telephone of Fig. 1;

15 Fig. 3 is a block diagram of the parts forming the telephone of Fig. 1;

Fig. 4 is a flow diagram of a portable cellular telephone according to the present invention;

20 Fig. 5 is a schematic diagram showing a communication system with telematic services supplied by telecommunications stations and/or networks according to the present invention.

Description of the Preferred Embodiment

The inventive idea lies in the use of a cellular telephone as a communication terminal with further telecommunications networks

or stations associated with telematic services, which cellular telephone is able to perform usual common terminal functions with respect to the cellular telephony network. According to the present invention, this cellular telephone can be separated in two sections, a first part concentrating the subscriber interface functions, the first section also having a transceiver in communication with telecommunications networks or stations associated with distribution of telematic services, whereas the second part of the cellular telephone houses the power functions associated with the cellular telephone network, which are potentially harmful to the subscriber.

Figure 1 shows a portable apparatus for cellular telephone 10, which consists of a first part 11, including the telephone audio section, with earphone 12 and microphone 13, a keyboard 14 and an LCD display 15 which perform the functions of subscriber interface functions, and a second part 16 containing the entire power radio section for reception and transmission from and to the cellular network. For this purpose, the second part has an appropriate antenna 17 and a GSM dual-band DCS transceiver. For simplicity's sake, reference will be made to GSM system; however, any other current or future standard (such as UMTS standard) can be used. The antenna may be either of the "stubby" or "patch" type.

The first and second parts can be assembled together and separated from each other by clips 18. When separated, the first

and second parts are in communication with each other via a wireless bi-directional connection.

This connection can be advantageously obtained by a low power radio link, such as at 2.4 GHz frequency with internal antennas, for example provided directly in the printed circuits of the apparatus. Connection can be obtained with any desired protocol, preferably an encrypted protocol, e.g. a BlueTooth standard radio link.

When both parts are assembled, they may have a bidirectional connection through a pair of appropriate connectors 19, joining automatically to each other.

The second part 16 may have a connector 20 for recharging its internal batteries and also the internal batteries of the first part 11 through the connectors 19.

As shown in Fig. 4, the second part 16 (also called "power transceiving part") can be equipped with a further interfacing connector 21 for connection to a personal computer 22, to allow a direct digital data exchange with the cellular network (such as to use the second part 16 for a "modem" function). The first part 11, or "control and audio part", may advantageously have an interface 23, such as an infrared one, in particular IrDA, for data exchange with the personal computer, i.e. the telematic services station.

Fig. 3 shows a preferred embodiment of the apparatus according to the present invention.

In this preferred embodiment, the power part 16 includes the transceiver section 24 (GSM-DCS or other) mentioned above - which is not further described nor represented since it is a common one and easily conceivable by a man skilled in the art - and a connector 25 for a subscriber identifying module, such as a SIM or UIM, to get access to the network. The part 16 may also have a buzzer 26, to be activated by the part 11 to facilitate finding it should it get lost, and a vibration call indicator 27, which is useful to signal the subscriber about the arrival of a call when both parts are assembled forming a single apparatus. In addition (or alternatively) the part 11 can have its own vibration call indicator 28. This is useful whenever the power section, for example, is located somewhere else (or placed in a case) and only the part 11 is kept in one's pocket.

Referencing Fig. 3, besides the already mentioned earphone 12, microphone 13, display 15 and keyboard 14, the part 11 may also have a connector for SmartCard 29, i.e. a Smartcard can be connected for enabling access to telematic services, and a connector for Multimedia Card 30, i.e. a Flash data memory card or the like.

Fig. 5 shows a communication system with telematic services supplied by telecommunication stations and/or networks, according to the present invention.

As can be seen in Fig. 5, several telephones according to the present invention (each one having its own respective parts 11,16) can carry on a dialog with the cellular network 31, to which conventional cellular telephones can have access as well. In addition, each of the telephones according to the present invention may have their part 11 connected (a short distance) to a private station or network 32 through the interface 23 or another wireless communicating device. All units 11 or just the enabled units 11 may connect to this private station or network, e.g. through the SmartCard 29 or Multimedia Card 30.

For example, the station 32 may be installed in the house of a cellular telephone subscriber so as to have a private communication line between home and portable telephone, or be installed within companies wanting an internal communication system (with private access for company employees only) or a dedicated communication system for customers, who can subscribe the service or obtain it as a "bonus". The latter utilization may be advantageous, e.g., for banks.

From the above description the features of the present invention as well as the associated advantages thereof are clear.

Through its separable control and audio part, the portable cellular telephone according to the present invention is advantageously able to interact not only with the standard cellular network, but also with a further station or network through another

wireless connecting device arranged on the control and audio part. Advantageously, the subscriber can utilize the control and audio part to have access also to other services not provided by the cellular telephony network, such as company services, bank services
5 or household network services. Moreover, the availability of smartcards and multimedia card connectors allows configuration of the control and audio part as a true multiservice terminal.

The portable cellular telephone according to the present invention can be separated, whenever desired, into a power part to
10 be placed at distance from the subscriber body, and a control and audio part with all subscriber interface functions usually available in a conventional cellular telephone, without any high power radio irradiations located near the subscriber's body.

The portable cellular telephone according to the present
15 invention will advantageously use a radio transmission for connection between the two telephone parts, whose power is much lower than required for GSM transmission.

It is obvious that many changes are possible, for the man skilled in the art, to the portable cellular telephone and
20 communication system with telematic services supplied by telecommunications stations and/or networks thereof described above by way of example, without departing from the novelty and spirit of the innovative idea, and it is also clear that in practical application of the invention the components may often differ in

form and size from the ones described and be replaced with technically equivalent elements.

For example, other functions and accessories may be provided, such as an FM radio, MP3 audio decoder functions, Voice Memo and
5 Dialing, Web Browser, etc.

The use of a standard radio link between the two parts will also allow connection of the control and audio module, other than connection with its own power part., to other equipment compatible with this standard. The power part 16 can also be used on its own
10 as a GSM transceiving unit connected to a computer (preferably a portable one) for practical data exchange through the network.

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CLAIMS

1 (amended). A portable cellular telephone, having a first part comprising interface means for performing subscriber interface functions and a second part comprising transceiver means for
5 transmitting and receiving over a telecommunications cellular telephone network, said first part and second part being releasably connected to each other, said first part and second part being in bidirectional communication with each other when separated, said first part further comprising means for wireless communication with
10 a further telecommunications network or with a telecommunication station.

2 (amended). A portable cellular telephone, according to claim 1, wherein said means for wireless communication comprises a radio.

15 3 (amended). A portable cellular telephone, according to claim 2, wherein when said parts are connected, direct communication takes place therebetween.

4 (amended). A portable cellular telephone, according to claim 3, wherein the second part further comprises a connector for
20 the reception and transmission of digital data through the cellular network.

5 (amended). A portable cellular telephone, according to claim 1, wherein the means for wireless communication comprises an infrared connection.

6 (amended). A portable cellular telephone, according to claim 1, wherein said infrared connection puts the first part in communication with a computer.

7 (amended). A portable cellular telephone, according to claim 1, wherein said means for wireless communication comprises a short distance connection to the station or network.

8 (amended). A portable cellular telephone, according to claim 1, wherein said means for wireless communication comprises a standard radio link utilized for bidirectional communication with the second part.

9 (amended). A portable cellular telephone, according to claim 1, wherein said first part comprises a connector for a SmartCard or Multimedia Card.

10 (amended). A portable cellular telephone, according to claim 1, wherein said means for performing subscriber interface functions comprises a keyboard, a display and means for performing audio functions.

11 (amended). A portable cellular telephone, according to claim 1, comprising means for performing FM radio functions and/or MP3 audio decoder functions and/or Voice Memo and Dialing functions and/or Web Browser functions.

12 (amended). A communication system with telematic services supplied by telecommunication stations and/or networks, which provides utilization of subscriber terminals for information

exchange with said telecommunication stations or networks,
comprising a subscriber terminal which includes a portable cellular
telephone having a first part comprising interface means for
performing subscriber interface functions and a second part
5 comprising transceiver means for transmitting and receiving over a
telecommunications cellular telephone network, said first part and
second part being releasably connected to each other, said first
part and second part being in bidirectional communication with each
other when separated, said first part further comprising means for
10 wireless communication with a further telecommunications network or
with a telecommunication station, said communications system
further comprising means for enabling at least one of the
telecommunication stations or networks to communicate directly and
wireless with said means for wireless communication.

13 (amended). A communication system with telematic services
supplied by telecommunication stations and/or networks, according
to claim 12, wherein the telecommunication station or
telecommunication network is a company internal communication
station or network and/or a station or network for authorized
20 customers.

14 (amended). A communication system with telematic services
supplied by telecommunication stations and/or networks, according
to claim 13, wherein said company internal telecommunication

station or network and/or station or network for authorized customers is a bank services network.

15 (amended). A communication system with telematic services supplied by telecommunication stations and/or networks, according
5 to claim 12, wherein said telecommunication station or network is an internal household communication station or network.

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Abstract of the Disclosure

A portable cellular telephone, has two separable parts, one for performing subscriber interface functions and another for performing transmitting and receiving functions on a cellular
5 telephone network, the parts being in bidirectional communication with each other when separated. The part for performing interface functions is adapted for wireless communication with a further station or network.

Appendix B

Entire Specification and Claims as Amended March 14, 2002

Insertions And Deletions Shown



PORTABLE CELLULAR TELEPHONE
AND COMMUNICATION SYSTEM THEREOF

~~DESCRIPTION~~ Background of the Invention

5 The present invention relates to a portable cellular telephone and ~~relevant~~ associated communication system with telematic services supplied by telecommunications stations and/or networks.

 In recent times, telecommunications networks have experienced an extremely fast development spreading to every society level and
10 making available to subscribers a large number of remote access services through special terminals.

~~Said~~ The telematic services range from Internet connectivity to interactions with other network types, which may be identified by a wide geographical coverage, such as a cellular telephone network,
15 or have a local diffusion, such as a company network, or just be simple stations for supplying ~~said~~ services, such as a computer. Also ~~the~~ services having access through special smartcards connected with the terminals are included in this range of telematic services.

20 Therefore, subscribers need to use a plurality of terminals to provide interaction with ~~said~~ the telematic services, involving consequent encumbrance and managementing problems.

 In addition, some of these terminals, in particular those using radio transmissions, such as cellular telephones, expose the
25 subscriber's body to very close radio emissions. Therefore, it is obvious how such exposures are dangerous for the subscriber, and how, increasing the number of terminals ~~determining~~ causing such

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

harmful radio emissions in contact with the subscriber, would be extremely harmful.

Summary of the Invention

It is ~~the~~ an object of the present invention to solve the
5 above drawbacks and provide a portable cellular telephone and
associated~~relevant~~ communication system with telematic services
supplied by telecommunications stations and/or networks, having a
more efficient and improved performance with respect to existing
solutions.

10 Withi~~In~~ this framework, it is ~~the~~ a main object of the present
invention to provide a portable cellular telephone and
associated~~relevant~~ communication system with telematic services
supplied by telecommunications stations and/or networks allowing
concentration of the terminals required for a subscriber's
15 interaction with the telematic services in one terminal alone,
which is not harmful ~~for~~ to the subscriber.

Europeant patent application EP-A-781018 discloses a mobile
phone device in two parts, one part containing the high-frequency
circuits and the other the low-frequency circuits. These two parts
20 can communicate through wire, infrared or ultrasound connection, so
that the high-frequency part is capable of being placed at a
location where the quality of the radio link is good, while the
user can still move relatively freely holding the low-frequency
part.

24 43 44 45 46 47 48 49 50 51 52 53 54 55

In order to achieve such aims, it is ~~the~~an object of the present invention to provide a portable cellular telephone and associated~~relevant~~ communication system with telematic services supplied by telecommunications stations and/or networks, incorporating the features of the annexed claims, which form an integral part of the description herein.

Description of the Drawings

Further objects, features and advantages of the present invention will become apparent from the following detailed description and annexed drawings, which are supplied by way of non limiting example, wherein:

Fig. 1 ~~shows~~is an exploded prospective view of a portable cellular telephone according to the present invention;

Fig. 2 ~~is~~shows a side view of the telephone of Fig. 1;

15 Fig. 3 ~~is~~shows a block diagram of the parts forming the telephone of Fig. 1;

Fig. 4 ~~is~~shows a ~~possible~~ flow diagram of ~~the~~a portable cellular telephone according to the present invention;

20 Fig. 5 ~~shows~~is a schematic diagram showing a communication system with telematic services supplied by telecommunications stations and/or networks according to the present invention.

Description of the Preferred Embodiment

The inventive idea lies in the use of a cellular telephone as a communication terminal with further telecommunications networks

or stations ~~associated to~~associated with telematic services, which cellular telephone is ~~able~~able to perform usual common terminal functions ~~towards~~with respect to the cellular telephony network. According to the present invention, this cellular telephone can be separated in two sections, a first part concentrating the subscriber interface functions, ~~said~~the first section also ~~comprising~~having a transceiver~~ing means towards~~in communication with ~~further~~ telecommunications networks or stations ~~associated to~~with distribution of telematic services, whereas the second part of the cellular telephone ~~concentrates~~houses the power functions ~~associated to~~associated with the cellular telephone network, which are potentially ~~harmful for~~harmful to the subscriber.

So, ~~Figure 1 is representing~~shows a portable apparatus for cellular telephone, ~~indicated in general with 10, which consists of a first part 11, comprising~~including the telephone audio section, with earphone 12 and microphone 13, a keyboard 14 and an LCD display 15 which perform, ~~i.e.~~ the functions of subscriber interface functions, and a second part 16 containing the entire power radio section for reception and transmission from and to the cellular network. ~~To~~For this purpose, the second part ~~comprises~~ has an appropriate antenna 17 and a GSM dual-band DCS transceiver. For simplicity's sake, reference will be made to GSM system; however, any other current or future standard ~~already applied~~

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~~nowadays or to be applied in the future~~ (such as UMTS standard) can be used. The antenna may be either of the "stubby" or "patch" type.

The first and second parts can be assembled together and separated from each other by ~~means of clips indicated by way of~~ example with 18. When separated, the first and second parts are in communication with each other by ~~means of~~ via a wireless bi-directional connection.

This connection can be advantageously obtained by a low power radio link, such as at 2.4 GHz frequency with internal antennas, for example provided directly in the printed circuits of the apparatus. Connection can be obtained with any desired protocol, preferably an encrypted ~~protocol~~, ~~obtaining~~ e.g. a BlueTooth standard radio link.

When both parts are assembled, they may have a bidirectional connection through a pair of appropriate connectors 19, joining automatically to each other.

The second part 16 may ~~provide~~ have a connector 20 for recharging its internal batteries and also the internal batteries of the first part 11 through the connectors 19.

As shown in Fig. 4, the second part 16 (also called "power transceiving part") can be equipped with a further interfacing connector 21 for connection to a personal computer 22, to allow a direct digital data exchange with the cellular network (such as to use the second part 16 for a "modem" function). The first part 11,

or "control and audio part", may advantageously ~~comprise~~ have an interface 23, such as an infrared one, in particular IrDA, for data exchange with the personal computer, i.e. the telematic services station.

5 Fig. 3 shows a preferred embodiment of the apparatus according to the present invention.

 In this preferred embodiment, the power part 16 ~~comprises~~ includes the transceiver section 24 (GSM-DCS or other) mentioned above - which is not further described nor represented ~~being~~ since
10 it is a common one and easily conceivable by a man skilled in the art - and a connector 25 for a subscribersubscriber identifying module, such as a SIM or UIM, to get access to the network. The part 16 may also ~~comprise~~ have a buzzer 26, to be activated by the part 11 to facilitate ~~its research~~ finding it should it get lost,
15 and a vibration call indicator 27, which is useful to signal the subscriber about the arrival of a call when both parts are assembled forming ~~one~~ a ~~single~~ single apparatus. In addition (or alternatively) ~~also~~ the part 11 can have its own vibration call indicator 28. This is useful whenever the power section, for
20 example, is located somewhere else (or placed in a case) and only the part 11 ~~is~~ kept in one's pocket.

~~Always with~~ Referencing to Fig. 3, besides the already mentioned earphone 12, microphone 13, display 15 and keyboard 14, the part 11 may also ~~comprise~~ have a connector for SmartCard 29,

i.e. wherein a Smartcard can be housed connected for enabling access to telematic services, and a connector for Multimedia Card 30, i.e. a Flash data memory card or analogous the like.

Fig. 5 shows a communication system with telematic services
5 supplied by telecommunication stations and/or networks, according
to the present invention.

As ~~it can be seen in this figure~~Fig. 5, several telephones according to the present invention (each one ~~consisting~~having its ~~of their own~~ respective parts 11,16) can carry on a dialog with the cellular network 31, to which ~~also~~ conventional cellular telephones can have access as well. In addition, each of the telephones according to the present invention may have their part 11 connected (as short distance) to a private station or network 32 through the interface 23 or another wireless communicating ~~means~~device. All units 11 or just the enabled units 11 may connect to this private station or network, e.g. through the SmartCard 29 or Multimedia Card 30.

For example, the station 32 may be installed in the house of
the a cellular telephone subscriber so as to have a private
20 communication line between home and portable telephone, or be
installed within companies wanting an internal communication system
(with ~~reserved~~ private access for company employees only) or a
~~reserved~~ dedicated communication system ~~with~~ for customers, who can

..

..

subscribe the service or obtain it as a "bonus". The latter utilization may be advantageous, e.g., for banks.

From the above description the features of the present invention as well as the associated~~relevant~~ advantages thereof are clear.

Through its separable control and audio part, the portable cellular telephone according to the present invention is advantageously ~~aptable~~ able to interact not only with the standard cellular network, but also with a further station or network through another~~further~~ wireless connecting ~~means~~ device arranged on ~~said~~the control and audio part. Advantageously, the subscriber can utilize ~~said~~the control and audio part to have access also to other services ~~differing~~ not provided by ~~from~~ the cellular telephony network, such as company services, bank services or household network services. Moreover, the availability of smartcards and multimedia card connectors allows configuration of ~~said~~the control and audio part ~~like~~ as a ~~real~~-true multiservice terminal.

The portable cellular telephone according to the present invention can be separated, whenever desired, into a power part to be placed at distance from the subscriber body, and a control and audio part with all subscriber interface functions usually available in a conventional cellular telephone, without any high power radio irradiations located near the subscriber's body.

The portable cellular telephone according to the present invention will advantageously use a radio transmission for connection between the two telephone parts, whose power is much lower than required for GSM transmission.

5 It is obvious that many changes are possible, for the man skilled in the art, to the portable cellular telephone and communication system with telematic services supplied by telecommunications stations and/or networks thereof described above by way of example, without departing from the novelty and spirit of
10 the innovative idea, and it is also clear that in practical ~~actuation~~application of the invention the components may often differ in form and size from the ones described and be replaced with technically equivalent elements.

For example, other functions and accessories may be provided,
15 such as an FM radio, MP3 audio decoder functions, Voice Memo and Dialling, Webap Browser, etc.

The use of a standard radio link between the two parts will also allow connection of the control and audio module, other than connection with its own power part., to other equipment compatible
20 with this standard. The power part 16 can also be used on its own as a GSM transceiving unit connected to a computer (advantageously preferably a portable one) for practical data exchange through the network.

30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000

CLAIMS

1 (amended). A portable cellular telephone, having a first
part comprising interface means for performing subscriber interface
functions ~~(12, 13, 14, 15)~~ and a second part comprising transceiver
5 means for transmitting and receiving section ~~(17, 24)~~ for over a
telecommunications cellular telephone network ~~(31)~~, ~~the means for~~
~~performing subscriber interface functions (12, 13, 14, 15) being~~
~~gathered in a first part (11) of said portable cellular telephone,~~
~~whereas the transmitting and receiving section (17, 24) for a~~
10 ~~cellular telephone network (31) is in a second part (16) of said~~
~~portable cellular telephone,~~ said first part ~~(11)~~ and second part
~~(16)~~ being assembled together releasably from connected to each
other, said first ~~(11)~~ part and second part ~~(16)~~ being in
bidirectional communication with each other when separated,
15 ~~characterized in that said first part further comprises~~ means
for wireless communication ~~ng~~ with a further telecommunications
network or with a telecommunication station ~~(22, 32)~~.

2 (amended). A portable cellular telephone, according to
claim 1, ~~characterized in that the~~ wherein said means for -wireless
20 ~~bidirectional communication occurs by~~ comprises a radio.

3 (amended). A portable cellular telephone, according to
claim 2, ~~characterized in that~~ wherein when said parts are
assembled, ~~wireless bidirectional communication is replaced by a~~
direct transmission through connected, ~~an electric connection that~~

~~establishes upon mutual assembly of said first part (11) and said~~
~~second part (16) direct communication takes place therebetween.~~

4 (amended). A portable cellular telephone, according to
claim 3, ~~characterized in that~~wherein the second part ~~(16)~~further
5 comprises a connector ~~(22)~~ for the reception and transmission of
digital data through the cellular network~~(31)~~.

5 (amended). A portable cellular telephone, according to
claim 1, ~~characterized in that~~wherein the ~~wireless communicating~~
~~means~~ for wireless communication ~~of the first part (11) consist of~~
10 comprises an infrared connection~~(23)~~.

6 (amended). A portable cellular telephone, according to claim 1, ~~characterized in that~~wherein said infrared connection (23) puts the first part (11) in communication with a computer (22).

7 (amended). A portable cellular telephone, according to
15 claim 1, wherein ~~characterized in that said means for~~ wireless
communication~~ng means of the first part (11) consist of a~~ comprises
a short distance connection ~~with~~ to the station or network ~~(32)~~.

8 (amended). A portable cellular telephone, according to
claim 1, wherein ~~characterized in that said means for~~ wireless
20 ~~communicationg means of the first part (11) consist of the~~
comprises a standard radio link utilized for ~~the~~ bidirectional
communication with the second part ~~(16)~~.

9 (amended). A portable cellular telephone, according to
claim 1, ~~characterized in that~~wherein said first part ~~(11)~~

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

comprises a ~~SmartCard~~ connector for a SmartCard (29) and or
Multimedia Card ~~connector (30)~~.

10 10 (amended). A portable cellular telephone, according to
claim 1, ~~characterized in that~~wherein said means for performing
subscriber interface functions ~~(12, 13, 14, 15)~~ comprises a
keyboard, a display and means for performing audio functions.

11 11 (amended). A portable cellular telephone, according to
claim 1, ~~characterized in that it comprises~~comprising means for
performing FM radio functions and/or MP3 audio decoder functions
10 and/or Voice Memo and Dialling functions and/or Webap Browser
functions.

12 12 (amended). A communication system with telematic services
supplied by telecommunication stations and/or networks, which
provides utilization of subscriber terminals for information
15 exchange with said telecommunication stations or networks,
~~characterized comprising in that the~~a subscriber terminal ~~comprises~~
which includes a portable cellular telephone as claimed in claim 1
having a first part comprising interface means for performing
subscriber interface functions and a second part comprising
20 transceiver means for transmitting and receiving over a
telecommunications cellular telephone network, said first part and
second part being releasably connected to each other, said first
part and second part being in bidirectional communication with each
other when separated, said first part further comprising means for

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wireless communication with a further telecommunications network or
with a telecommunication station, said communications system
further comprising means for enabling at least one of the
telecommunication stations or networks ~~(32)~~ ~~apt~~ to communicate
5 directly and wireless with said means for wireless communicating
~~means~~ ~~(23)~~ on.

13 (amended). A communication system with telematic services
supplied by telecommunication stations and/or networks, according
to claim 12, ~~characterized in that~~ wherein the telecommunication
10 station or telecommunication network ~~(22, 32)~~ is a company internal
communication station or network and/or a station or network for
~~enabled~~ authorized customers.

14 (amended). A communication system with telematic services
supplied by telecommunication stations and/or networks, according
15 to claim 13, ~~characterized in that~~ wherein said company internal
telecommunication station or network and/or station or network for
~~enabled~~ authorized customers is a bank services network.

15 (amended). A communication system with telematic services
supplied by telecommunication stations and/or networks, according
20 to claim 12, ~~characterized in that~~ wherein said telecommunication
station or network ~~(22, 32)~~ is an internal household communication
station or network.

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ABSTRACT Abstract of the Disclosure

A pPortable cellular telephone, has two separable parts, one
~~comprising means for performing subscriber interface functions (12,~~
~~13, 14, 15) and another for performing a transmitting and receiving~~
5 ~~section (17, 24) functions on for a cellular telephone network,~~
~~(31), the means for performing subscriber interface functions (12,~~
~~13, 14, 15) being gathered in a first part (11) of said portable~~
~~cellular telephone, whereas the transmitting and receiving section~~
~~(17, 24) for a cellular telephone network (31) is in a second part~~
10 ~~(16) of said portable cellular telephone, said the first (11) and~~
~~second parts (16) being in bidirectional communication with each~~
~~other when separated.~~

~~According to the invention, said first part comprises means~~
~~for~~ The part for performing interface functions is adapted for
15 wireless communication with a further station or network (22, 32).

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- 1 -

PORTABLE CELLULAR TELEPHONE AND COMMUNICATION SYSTEM THEREOF

DESCRIPTION

The present invention relates to a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks.

In recent times, telecommunications networks have experienced an extremely fast development spreading to every society level and making available to subscribers a large number of remote access services through special terminals.

Said telematic services range from Internet connectivity to interactions with other
5 network types, which may be identified by a wide geographical coverage, such as a cellular telephone network, or have a local diffusion, such as a company network, or just be simple stations for supplying said services, such as a computer. Also the services having access through special smartcards connected with the terminals are included in this range of telematic services.

10 Therefore, subscribers need to use a plurality of terminals to provide interaction with said telematic services, involving consequent encumbrance and managing problems.

In addition, some of these terminals, in particular those using radio transmissions, such as cellular telephones, expose the subscriber's body to very close radio emissions. Therefore, it is obvious how such exposures are dangerous for the subscriber and how,
15 increasing the number of terminals determining such harmful radio emissions in contact with the subscriber, would be extremely harmful.

It is the object of the present invention to solve the above drawbacks and provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks, having a more efficient and
20 improved performance with respect to existing solutions.

In this frame, it is the main object of the present invention to provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks allowing concentration of the terminals required for subscriber's interaction with the telematic services in one terminal alone,
25 which is not harmful for the subscriber.

In order to achieve such aims, it is the object of the present invention to provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks, incorporating the features of the annexed claims, which form an integral part of the description herein.

5 Further objects, features and advantages of the present invention will become apparent from the following detailed description and annexed drawings, which are supplied by way of non limiting example, wherein:

- Fig. 1 shows an exploded prospective view of a portable cellular telephone according to the present invention;
- 10 - Fig. 2 shows a side view of the telephone of Fig. 1;
- Fig. 3 shows a block diagram of the parts forming the telephone of Fig. 1;
- Fig. 4 shows a possible flow diagram of the portable cellular telephone according to the present invention;
- Fig. 5 shows a communication system with telematic services supplied by
- 15 telecommunications stations and/or networks according to the present invention.

The inventive idea lies in the use of a cellular telephone as a communication terminal with further telecommunications networks or stations associated to telematic services, which cellular telephone is apt to perform usual common terminal functions towards the cellular telephony network. According to the present invention, this cellular telephone

20 can be separated in two sections, a first part concentrating the subscriber interface functions, said first section also comprising transceiving means towards further telecommunications networks or stations associated to distribution of telematic services, whereas the second part of the cellular telephone concentrates the power functions associated to the cellular telephone network, which are potentially harmful for the

25 subscriber.

So, Figure 1 is representing a portable apparatus for cellular telephone, indicated in general with 10, which consists of a first part 11, comprising the telephone audio section, with earphone 12 and microphone 13, a keyboard 14 and an LCD display 15, i.e. the functions of subscriber interface functions, and a second part 16 containing the

30 entire power radio section for reception and transmission from and to the cellular network. To this purpose, the second part comprises an appropriate antenna 17 and a GSM dual-band DCS transceiver. For simplicity's sake, reference will be made to GSM

system; however, any other standard already applied nowadays or to be applied in the future (such as UMTS standard) can be used. The antenna may be either "stubby" or "patch" type.

The first and second parts can be assembled together and separated from each other by means of clips indicated by way of example with 18. When separated, the first and second parts are in communication with each other by means of a wireless bi-directional connection.

This connection can be advantageously obtained by a low power radio link, such as at 2.4 GHz frequency with internal antennas, for example provided directly in the printed circuits of the apparatus. Connection can be obtained with any desired protocol, preferably an encrypted -protocol, obtaining e.g. a BlueTooth standard radio link.

When both parts are assembled, they may have a bidirectional connection through a pair of appropriate connectors 19, joining automatically to each other.

The second part 16 may provide a connector 20 for recharging its internal batteries and also the internal batteries of the first part 11 through the connectors 19.

As shown in Fig. 4, the second part 16 (also called "power transceiving part") can be equipped with a further interfacing connector 21 to a personal computer 22, to allow a direct digital data exchange with the cellular network (such as to use the second part 16 for a "modem" function). The first part 11, or "control and audio part", may advantageously comprise an interface 23, such as an infrared one, in particular IrDA, for data exchange with the personal computer, i.e. the telematic services station.

Fig. 3 shows a preferred embodiment of the apparatus according to the present invention.

In this preferred embodiment, the power part 16 comprises the transceiver section 24 (GSM-DCS or other) mentioned above – which is no further described nor represented being a common one and easily conceivable by a man skilled in the art – and a connector 25 for a subscribersubscriber identifying module, such as SIM or UIM, to get access to the network. The part 16 may also comprise a buzzer 26, to be activated by the part 11 to facilitate its research should it get lost, and a vibration call indicator 27, which is useful to signal the subscriber about the arrival of a call when both parts are assembled forming one sole apparatus. In addition (or alternatively) also the part 11 can have its own vibration call indicator 28. This is useful whenever the power section, for

example, is located somewhere else (or placed in a case) and only the part 11 is kept in one's pocket.

Always with reference to Fig. 3, besides the already mentioned earphone 12, microphone 13, display 15 and keyboard 14, the part 11 may also comprise a connector for SmartCard 29, i.e. wherein a Smartcard can be housed for enabling access to telematic services, and a connector for Multimedia Card 30, i.e. a Flash data memory card or analogous.

Fig. 5 shows a communication system with telematic services supplied by telecommunication stations and/or networks, according to the present invention.

As it can be seen in this figure, several telephones according to the present invention (each one consisting of their respective parts 11,16) can carry on a dialog with the cellular network 31, to which also conventional cellular telephones can have access as well. In addition, the telephones according to the present invention may have their part 11 connected (as short distance) to a private station or network 32 through the interface 23 or other wireless communicating means. All units 11 or just the enabled units 11 may connect to this private station or network, e.g. through the SmartCard 29 or Multimedia Card 30.

For example, the station 32 may be installed in the house of the cellular telephone subscriber so as to have a private communication line between home and portable telephone, or be installed with companies wanting an internal communication system (with reserved access for company employees only) or a reserved communication system with customers, who can subscribe the service or obtain it as a "bonus". The latter utilization may be advantageous e.g. for banks.

From the above description the features of the present invention as well as the relevant advantages thereof are clear.

Through its separable control and audio part, the portable cellular telephone according to the present invention is advantageously apt to interact not only with the standard cellular network, but also with a further station or network through further wireless connecting means arranged on said control and audio part. Advantageously, the subscriber can utilize said control and audio part to have access also to other services differing from the cellular telephony network, such as company services, bank services or household network services. Moreover, availability of smartcards and multimedia

card connectors allow configuration of said control and audio part like a real true multiservice terminal.

The portable cellular telephone according to the present invention can be separated, whenever desired, in a power part to be placed at distance from the subscriber body,
5 and a control and audio part with all subscriber interface functions usually available in a conventional cellular telephone, without any high power radio irradiations located near the subscriber's body.

The portable cellular telephone according to the present invention will advantageously use a radio transmission for connection between the two telephone parts, whose power
10 is much lower than required for GSM transmission.

It is obvious that many changes are possible for the man skilled in the art to the portable cellular telephone and communication system with telematic services supplied by telecommunications stations and/or networks thereof described above by way of example, without departing from the novelty spirit of the innovative idea, and it is also
15 clear that in practical actuation of the invention the components may often differ in form and size from the ones described and be replaced with technical equivalent elements.

For example, other functions and accessories may be provided, such as an FM radio, MP3 audio decoder functions, Voice Memo and Dialling, Wap Browser, etc.

The use of a standard radio link between the two parts will also allow connection of the
20 control and audio module, other than connection with its own power part., to other equipment compatible with this standard. The power part 16 can also be used on its own as a GSM transceiving unit connected to a computer (advantageously a portable one) for practical data exchange through the network.

CLAIMS

1. A portable cellular telephone, comprising means for performing subscriber interface functions (12, 13, 14, 15) and a transmitting and receiving section (17, 24) for a cellular telephone network (31), the means for performing subscriber interface functions (12, 13, 14, 15) being gathered in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first (11) and second part (16) being in bidirectional communication with each other when separated, characterized in that said first part comprises means for wireless communicating with a further station or network (22, 32).
2. A portable cellular telephone, according to claim 1, characterized in that the wireless bidirectional communication occurs by radio.
3. A portable cellular telephone, according to claim 2, characterized in that said first part (11) and second part (16) are assembled together releasable from each other.
4. A portable cellular telephone, according to claim 3, characterized in that when said parts are assembled, wireless bidirectional communication is replaced by a direct transmission through an electric connection that establishes upon mutual assembly of said first part (11) and said second part (16).
5. A portable cellular telephone, according to claim 4, characterized in that the second part (16) comprises a connector (22) for the reception and transmission of digital data through the cellular network (31).
6. A portable cellular telephone, according to claim 1, characterized in that the wireless communicating means of the first part (11) consist of an infrared connection (23).
7. A portable cellular telephone, according to claim 1, characterized in that said infrared connection (23) puts the first part (11) in communication with a computer (22).
8. A portable cellular telephone, according to claim 1, characterized in that said wireless communicating means of the first part (11) consist of a short distance connection with the station or network (32).
9. A portable cellular telephone, according to claim 1, characterized in that said wireless communicating means of the first part (11) consist of the standard radio link utilized for the bidirectional communication with the second part (16).

10. A portable cellular telephone, according to claim 1, characterized in that said first part (11) comprises a SmartCard connector (29) and or Multimedia Card connector (30).

11. A portable cellular telephone, according to claim 1, characterized in that said means for performing subscriber interface functions (12, 13, 14, 15) comprise a keyboard, a display and audio functions.

12. A portable cellular telephone, according to claim 1, characterized in that it comprises FM radio functions and/or MP3 audio decoder functions and/or Voice Memo and Dialling and/or Wap Browser functions.

10 13. A communication system with telematic services supplied by telecommunication stations and/or networks, which provides utilization of subscriber terminals for information exchange with said telecommunication stations or networks, characterized in that as a subscriber terminal it uses a portable cellular telephone comprising means for performing subscriber interface functions (12, 13, 14, 15), a transmitting and
15 receiving section (17, 24) for a cellular telephone network (31), said means for performing subscriber interface functions (12, 13, 14, 15) being gathered together in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first part (11) and second part (16) being in wireless
20 bidirectional communication to each other when they are separated, and that said first part comprises wireless means (23) for communicating with a further station or network (22, 32), said system comprising at least one of the telecommunication stations or networks (32) apt to communicate directly and wireless with said wireless communicating means (23).

25 14. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 13, characterized in that the station or telecommunication network (22, 32) is a company internal communication station or network and/or a station or network for enabled customers.

30 15. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 14, characterized in that said company internal telecommunication station or network and/or station or network for enabled customers is a bank services network.

16. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 13, characterized in that said telecommunication station or network (22,32) is an internal household communication station or network.

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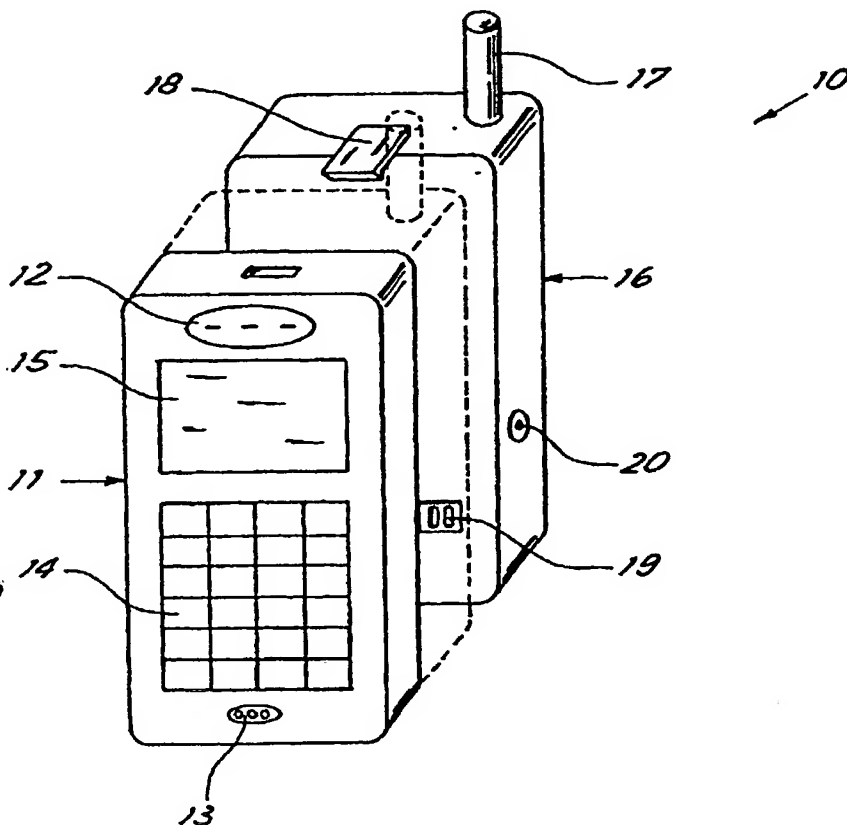
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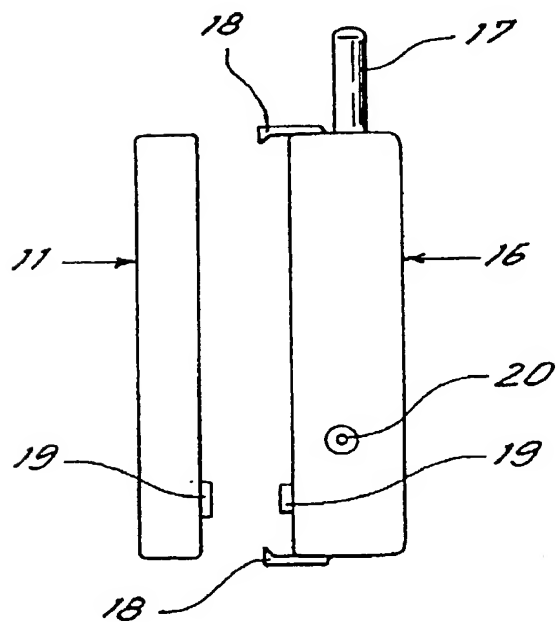
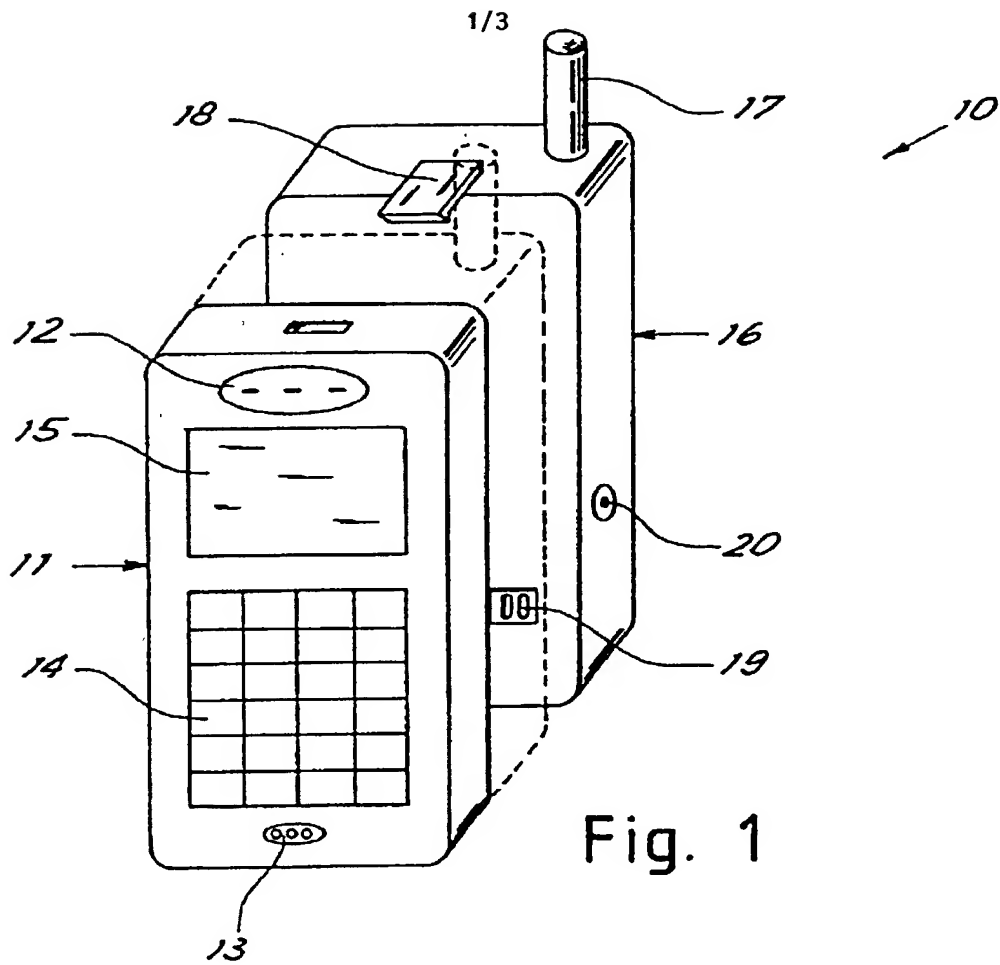
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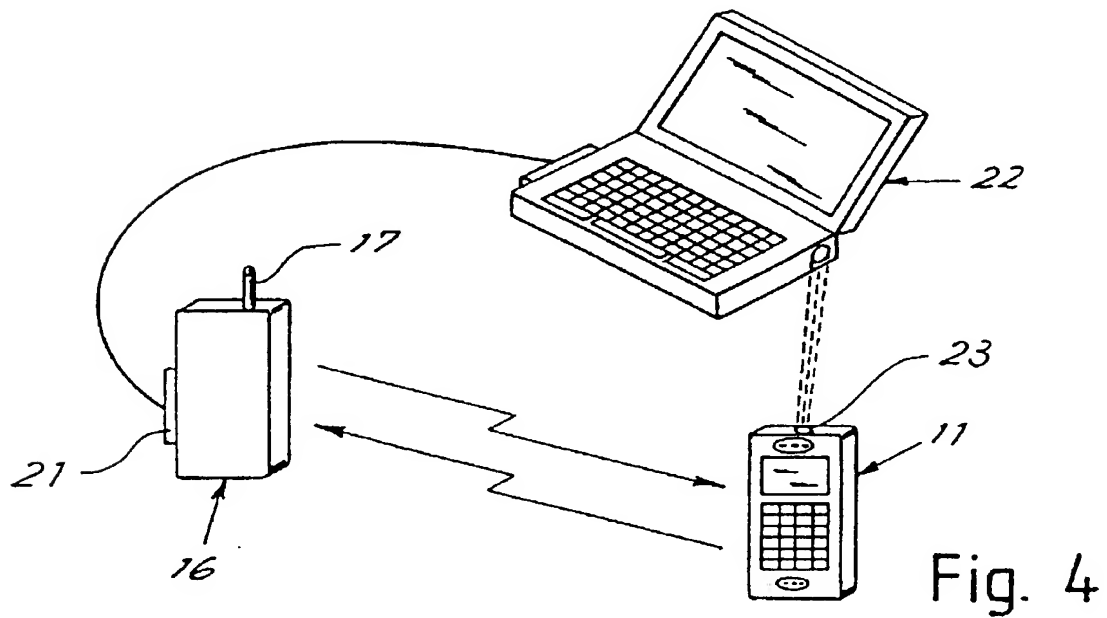
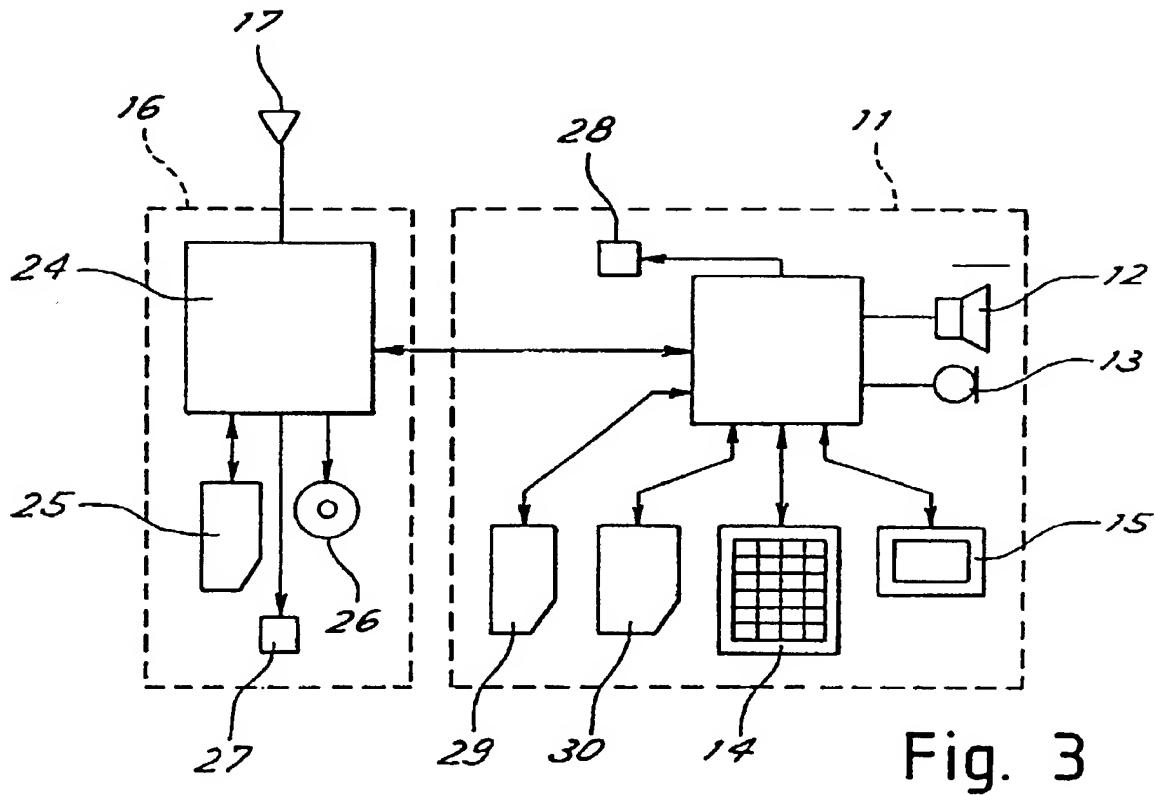
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(57) Abstract: Portable cellular telephone, comprising means for performing subscriber interface functions (12, 13, 14, 15) and a transmitting and receiving section (17, 24) for a cellular telephone network (31), the means for performing subscriber interface functions (12, 13, 14, 15) being gathered in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first (11) and second part (16) being in bidirectional communication with each other when separated. According to the invention, said first part comprises means for wireless communication with a further station or network (22, 32).

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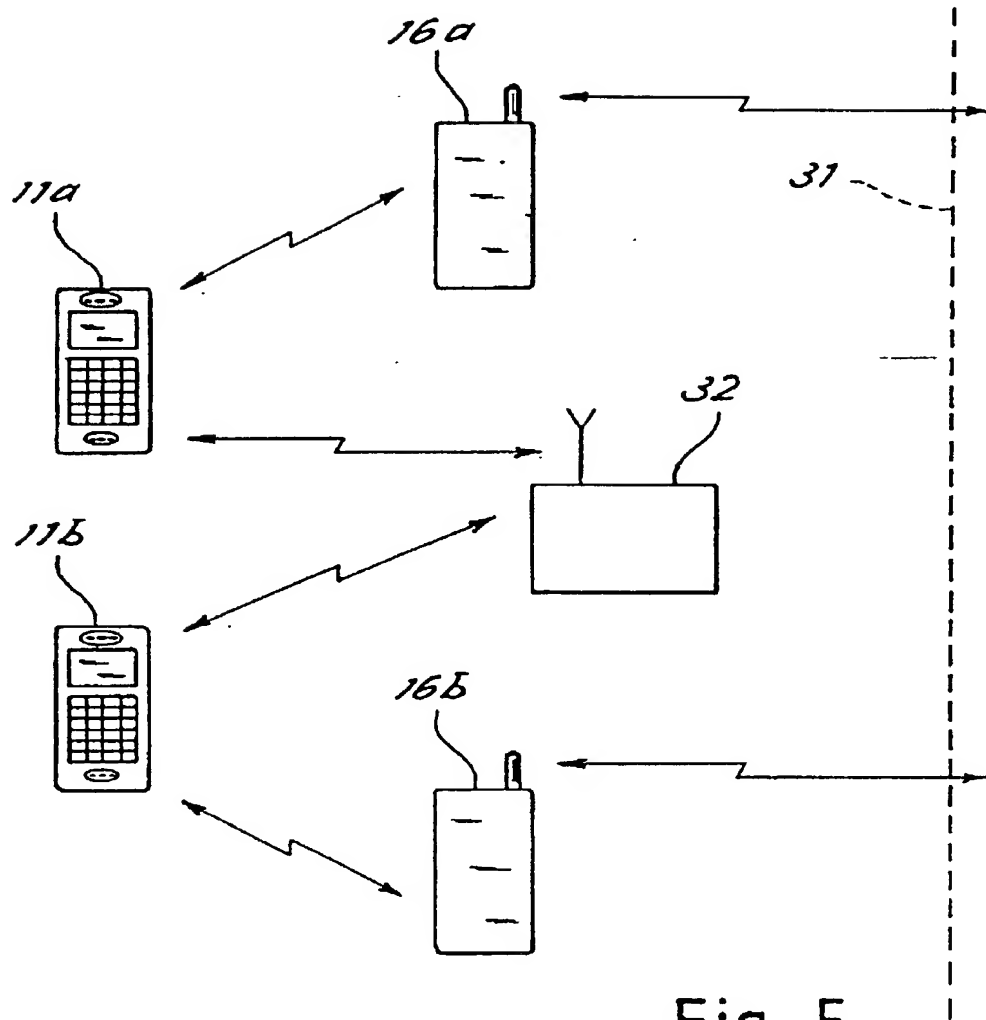


Fig. 5

Declaration for Patent Application

As a below named inventor, I hereby declare that:

This declaration is directed to:

- ☐ The attached application, or
- ☒ Application No. PCT/IB00/01320 filed on September 19, 2000
- ☒ as amended on January 3, 2002 (if applicable);

I/we believe I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;

I/we hereby state that I have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above.

I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 C.F.R. 1.56, including material information which became available between the filing date of the prior application and the National or PCT International filing date of the continuation-in-part application, if applicable; and

POWER OF ATTORNEY

I hereby appoint Practitioners at Customer No. 24235 as my/our attorney(s) to prosecute the application identified above, and to transact all business in the Patent and Trademark Office connected therewith.

All statements made herein of my own knowledge are true, and all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

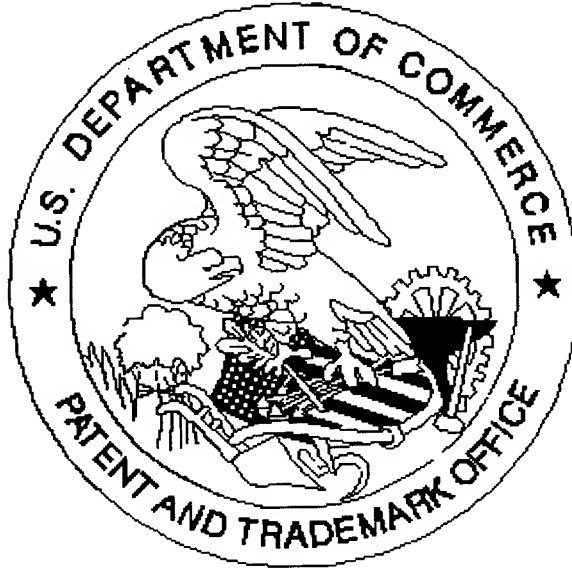
Full name of inventor(s):

Inventor One: Massimo Zanzi

Signature:  Citizen of Italy

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